

What is claimed is:

1. A distributed service integration system for communication networks, implemented as an application server, comprising:
 - (a) at least one module for managing and controlling said service integration system, interacting with each of the modules comprising said service integration system for the purpose of executing management and control thereof;
 - (b) at least one module for sending and receiving messages from and to a network;
 - (c) at least one service logic execution environment module; and
 - (d) at least one resource control module, optimizing the flow of data both between the components of said service integration system, and between said service integration system and the network, such that said resource control element is connected at least with said module for sending and receiving messages from and to a network and with said service logic execution environment module;

wherein all of the above modules are interacting with required corresponding hardware equipment for the purpose of executing their respective functions.

2. The service integration system of claim 1, wherein said at least one module for managing and controlling said service integration system is separated into at least one module for managing said service integration system and into at least one module for-controlling said service integration-system.
3. The service integration system of claim 1, wherein said at least one module for sending and receiving messages from and to a network is separated into at least one gateway module and to at least one functional module element.
4. The service integration system of claim 1, wherein said service integration system supports asynchronous execution of network services.

5. The service integration system of claim 1, wherein said distributed architecture enables replication of the elements comprising said service integration system to provide at least one of the following, selected from the group consisting of:
 - (a) fault tolerance;
 - (b) performance; and
 - (c) capacity.
6. The service integration system of claim 1, wherein said service integration system is constantly aware of the resources consumed by all handled sessions.
7. The service integration system of claim 1, wherein said service integration system controls the amount of resources allocated to the different sessions handled by said service integration system.
8. The service integration system of claim 1, enabling deterministic traffic control both within the TappS 10 system, and between the TappS 10 system and the network.
9. The service integration system of claim 1, wherein said network is a real-time communication network transporting time-sensitive traffic.
10. The service integration system of claim 1, wherein said network is a data-communication network.
11. The service integration system of claim 1, wherein said network is a hybrid-communication network combining at least voice-communication with data-communication.
12. The service integration system of claim 3, wherein said at least one functional module element further comprises:
 - (a) at least one functional module manager; and
 - (b) at least one functional module.

13. The service integration system of claim 3, wherein said at least one service logic execution environment module further comprises:
 - (a) at least one state machine controller;
 - (b) at least one memory; and
 - (c) at least one executable state machine.
14. The service integration system of claim 1, wherein said at least one resource control element further optimizes flow of traffic in accordance with a pre determined policy defined by the system administrator.
15. The service integration system of claim 1, wherein said at least one resource control element further analyzes and stores historical system resource consumption rates of the various services provided by said service integration system, and uses the stored data for optimizing the flow.
16. The service integration system of claim 1, wherein said service integration system is capable of at least one of the following, selected from the group consisting of:
 - (a) deployment of services;
 - (b) execution of services; and
 - (c) management of services.
17. The service integration system of claim 13, wherein said at least one executable state machine further comprises at least one state machine.
18. A distributed architecture service integration system for communication networks, implemented as an application server, comprising:
 - (a) at least one means for managing and controlling said service integration system, interacting with a plurality of the means comprising

- said service integration system for the purpose of executing management and control thereof;
- (b) at least one means for sending and receiving messages from and to a network;
 - (c) at least one means for providing a service logic execution environment for the purpose of running a service; and
 - (d) at least one means for optimizing the flow of data both between the components of said service integration system, and between said service integration system and the network, such that said means for optimizing the flow is connected at least with said means for sending and receiving messages from and to a network and with said means providing a service logic execution environment.
19. The service integration system of claim 18, wherein said service integration system is capable of at least one of the following, selected from the group consisting of:
- (a) deployment of services;
 - (b) execution of services; and
 - (c) management of services.
20. A method for providing services in a communication network comprising the steps of:
- (a) receiving a new message from said communication network;
 - (b) ~~checking with an independent centralized network resource if said new message is a new service request or is it a message relating to an already executing service;~~
 - (c) if said new message relates to an already executing service, channeling said new message to the executing service to which it pertains;
 - (d) if said new message is a new service request, channeling said new message to a service logic execution environment for execution of the requested service, and performing steps (e) and (f);

- (e) resolving the requested service from the services supported by said service integration system; and
 - (f) executing said resolved service.
21. A method in accordance with claim 20 wherein said step (f) further comprises the steps of:
- (a) posting tasks by said executing service for execution by said service integration system;
 - (b) processing said tasks by said service integration system; and
 - (c) receiving new messages by the executing service from both the communication network and said service integration system.
22. A method in accordance with claim 21 wherein said step (b) further comprises the steps of:
- (a) sending messages to the communication network; and
 - (b) sending messages to said executing service.
23. A method for deploying new services for communication networks, comprising the steps of:
- (a) implementing said new service by means of a high level computer language source code;
 - (b) compiling said source code; and
 - (c) integrating said compiled source code with said communication network by means of installing said compiled source code into a memory, where said new service is ready to be executed.
24. A method for controlling flow of traffic both within a service integration system and between a service integration system and between said service integration system and a communication network, comprising the steps of:

- (a) determining the expected resource consumption needs of a received task;
 - (b) determining the resource load level of external network channels;
 - (c) determining the resource load level of internal network channels; and
 - (d) forwarding a message into a selected network channel in accordance with the results received from performing steps (a), (b) and (c).
25. The service integration system of claim 9 wherein said time sensitive traffic is voice.
26. The service integration system of claim 9 wherein said time sensitive traffic is video.